

YAKEEN NEET 2.0

2026

Basic Maths and Calculus (Mathematical Tools)

Physics

Lecture – 01

By– Manish Raj (MR Sir)





Topics to be covered

1

Basic calculation. ✓

2

General guidance.

3

4

Math is a language
of physics.

Basic math.

2 times cover

selection box
concept used # ✓

PHYSICS

Patience

Se Concept

Sikho

Pen

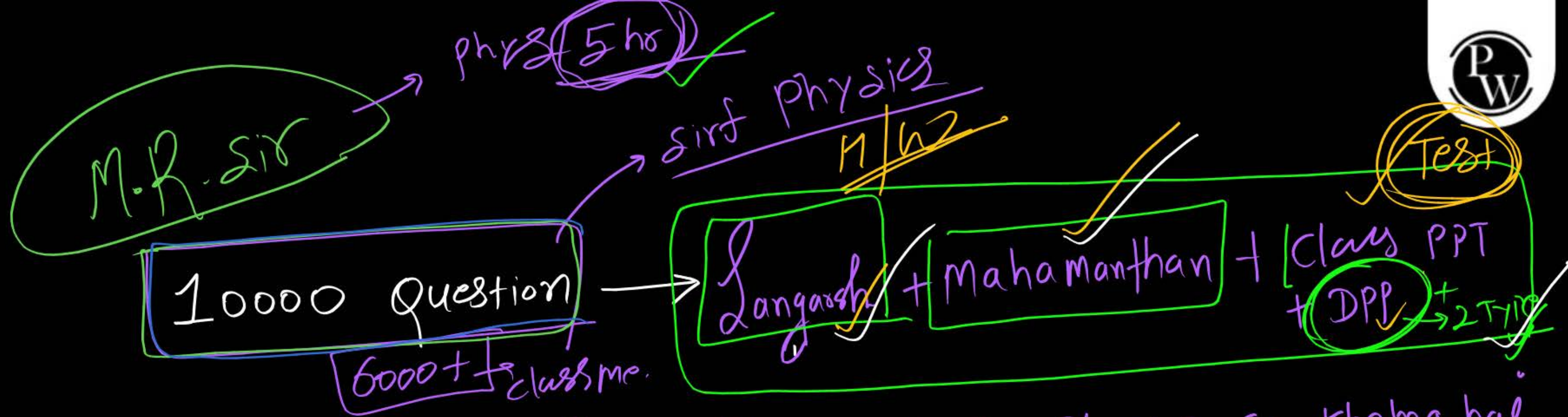
Abto
Bara
Culcul Koro

Paper

rough Page

Practical

Progress



- ☆ Concept ko feel se padhna hai, Physics se khelna hai.
- ☆ Ghar par bhot sare question karna chahate ho;
- ☆ Extra lecture se pare san nahi hoge.
- ☆ -ve se start karne ke liye ready ho & advance tak jana hai.



9:42



< My Performance

Batch
Yakeen NEET 2.5

Subject
Physics OG...

Overall Analysis

Tracked till 17/05/2025

Lectures Taken
347 + 2/8+

~~Lectures Cancelled~~
9 → reschedule

Expected Lecture	Starts On May 18th 2025
Actual Lecture	Ch - 30 : semiconductor Electronics: Materials, Devices and Simple Circuits Lect - 3



Class Nahi Miss Karna hai.



All theory notes me likhna hai (Short Notes khud banana hai)



Question rough page me solve karna hai.



Jo question 1st time me solve nahi hua usko mark karke rakhna hai.

for revision



Class ke bad notes band kar ke complete theory rough page me like ke practice karna hai



Question Practive \Rightarrow MR Physics PDF, module

\Rightarrow Notes

\Rightarrow DPP

*Memo'd
theory*

\Rightarrow Sangarsh Assignment

\Rightarrow Mahamanthan

JEE Mains (Adv)
NCERT all
All books
included



YE PAP MAT KARNA

- (1) Ye to easy hai, class nahi karna PDF se ho jayega ✗
- (2) Bina proper question read kiye answer dena ✗
- (3) Half calculation ke bad sochna, ho to gya isse ye aa jayega ✗
(Bio me direct answer dikh jata hai)
- (4) H/W / question practice nahi kar rha, (sirf teacher ke question solve karne se nahi hoga) ✓
- (5) Direct tough question karna hai, pahle basic ka master hona hoga.
- (6) Backlog hai to test nahi diya ✗
- (7) Life me dosti, pyar bhi jaruri hai. ✗
- (8) Fresh hone ke liye 20-25 minute to insta/youtube jaruri hai ✓



Success Margdarshan

30-45 minute every week throughout the year



Daily Challenger

2-3 question in every class solution in next class or next to next
Critical thinking develop ho jaygi



Maha-Manthan

NCERT deep line / HCV objective
Theory me problem nahi aayga

Sangarsh-Assignment

JEE Mains (80-90%) advance, level up question doubts of topper.

Solution mai dunga to koi problem nahi

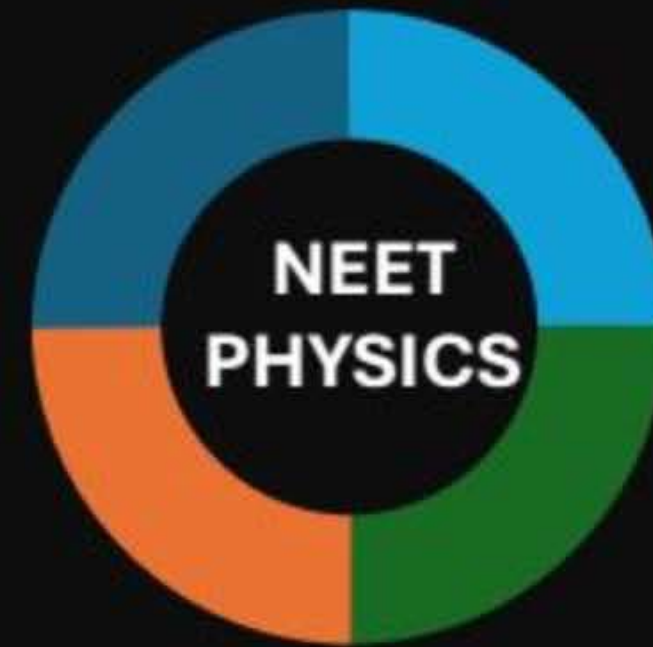
200-300 ✓

MR Physics PDF

Chapter wise extra question nahi likhna hai

Test Discussion

Selective level up question will discuss in class.



> CALCULATION

> MR*
feel

Start Karte hal

Question

What is the value of 50 by half?

1 50

2 25 ~~30%~~

3 100 ✓ 70%

4 200

$$\frac{50}{\left(\frac{1}{2}\right)} = \frac{50 \times 2}{1} = \underline{\underline{100}}$$

$$\frac{50}{0.5} = 100 \checkmark$$

$$\frac{50}{2} = 25$$



Find x

$$\frac{4}{(1/x)} = 3$$

$$\frac{4}{1/x} = 3$$

$$4x = 3$$

$$\boxed{x = \frac{3}{4}} \text{ A}$$

$$\frac{y}{(1/3)} = 4$$

$$\frac{y}{(1/3)} = 4$$
$$\boxed{y = \frac{4}{3}} \text{ AB } \checkmark$$

$\frac{a/b}{c/d} = \frac{ad}{bc}$ ✓

Question



Which is greater (a) $\frac{1}{\pi}$ or (b) $\frac{1}{e}$

$$\pi^2 \approx 10$$

$$e = 2.71$$

$$\pi = 3.14$$

$$\pi > e$$

$$\frac{1}{\sqrt{2}} > \frac{1}{2}$$

$$\frac{1}{10} = 0.1$$

$$\frac{1}{100} = 0.01$$

$$\frac{1}{1000} = 0.001$$

1 $\frac{1}{\pi}$

2 $\frac{1}{e}$
90%

3 Same

4 Can't say

$$\frac{1}{\pi} = \frac{1}{3.14} = \frac{1}{3.14} \times \frac{10}{10} \approx 0.314$$

$$\neq \frac{1}{\pi} = 0.314$$

$$\neq \frac{1}{e} = \frac{1}{2.71} = 0.37$$

* $\frac{1}{x} = \text{decreased}$
 $x \uparrow$

Question

What is the value of $\sqrt{50} + \sqrt{50}$?

1 $4\sqrt{50}$

2 $\sqrt{100}$ ~~✗~~

3 $\sqrt{200}$ ✓ (30%)

4 50 ~~✗~~

$$\sqrt{50} + \sqrt{50} = \sqrt{50} (1 + 1)$$

$$= \sqrt{50} \times 2$$

$$= 2 \times \sqrt{50}$$

$$= \sqrt{4 \times 50} = \sqrt{200} \checkmark$$

$$\sqrt{50} \times \sqrt{50} = 50$$

$$\sqrt{2} \times \sqrt{2} = 2$$

$$\sqrt{4} = 2$$

(Q) If n is a non-zero numbers then $n^2 < n$ is possible?

Ans yes

$$n = 0.1$$

$$n^2 = (0.1)^2$$

$$= 0.1 \times 0.1 = 0.01$$

$$= \frac{1}{10} \times \frac{1}{10}$$

$$= \frac{1}{100}$$

$$n^2 < 0.01$$

$$2^2 = 4$$

$$2^3 = 8$$

$$2^4 = 16$$

$$2^5 = 32$$

$$2^6 = 64$$

$$2^7 = 128$$

$$3^2 = 9$$

$$3^3 = 27$$

$$3^4 = 81$$

$$3^5 = 243$$

$$4^2 = 16$$

$$4^3 = 64$$

$$4^4 = 256$$

$$5^2 = 25 \quad | \quad 5^3 = 125$$



Rule of Power [Exponent]

1. If power of any non-zero number is zero then it will be equal to 1

$$2^0 = 1 \quad 8^0 = 1 \quad 10^0 = 1 \quad e^0 = 1$$

2. In product if Base is same then Power will add. ✓

$$x^n \cdot x^m = x^{n+m}$$

$$10^2 \times 10^6 = 10^{12} \quad \times$$

$$10^2 \times 10^6 = 10^8 \quad \checkmark$$

$$10^4 \times 10^3 = 10^7$$

$$10^4 + 10^3 = 10^7 \quad \times$$

Question

Find value of $10^2 + 10^3$?

1 10^5 ~~50%~~ ✗

2 10^6 ✗

3 1.1×10^3 ✓

4 1010 ✗

$$10^2 + 10^3 = 10^5 \text{ ✗}$$

$$\begin{aligned} 10^2 + 10^3 &= 100 + 1000 \\ &= 1100 \\ &= \frac{1100 \times (1000)}{(1000)} \end{aligned}$$

$$= \underline{\underline{1.1 \times 10^3}}$$

3. Division property of ~~exponent~~ (Power)

if Base is same in division then power will subtract.

$$\frac{10^3}{10^2} = 10^{3-2} = 10$$

4. Negative property of power

$$x^n = \frac{1}{x^{-n}}$$

$$\# 10^3 = \frac{1}{10^{-3}}$$

$$\frac{1}{10^{-5}} = 10^5$$

$$\frac{10^{-19}}{10^{-31}} = 10^{-19} \times 10^{31} = 10^{31-19} = 10^{12} \checkmark$$

5. Power of power

$$(x^n)^m = x^{n \times m}$$

$$(2^3)^4 = 2^{12} \checkmark$$

$$4^{1/2} = \sqrt{4} = 2$$

$$(2^2)^{1/2} = 2$$

6. Fractional Power

$$(x)^{3/2} = (x^3)^{1/2} = (x^{1/2})^3$$

$$(4)^{3/2} = (4^{1/2})^3$$

$$= (2)^3 = 8$$

$$(8)^{2/3} = (2^3)^{2/3} = 2^2 = 4 \checkmark$$

➤ $(8)^{2/3} =$

➤ $(4)^{4/3} =$

➤ $(64)^{2/5} =$

➤ $(1/2)^{-3} =$

➤ $(4)^{-3/2} =$

➤ $(2)^{-4} =$

➤ $(32)^{2/5} =$

➤ $(64)^{2/3} =$

H W

➤ $(125)^{2/3} =$

➤ $(25)^{3/2} =$

➤ $(216)^{2/3} =$

magnit
 $R = R_0 A^{1/3}$

➤ $\sqrt{2} = 1.41$

➤ $\sqrt{3} = 1.73$

➤ $\sqrt{5} = 2.23$

➤ $\sqrt{6} = 2.44$

➤ $\pi^2 = 10$

➤ $\sqrt{2} \times \sqrt{2} = 2^{\frac{1}{2}} \times 2^{\frac{1}{2}} = 2^{\frac{1}{2} + \frac{1}{2}} = 2^1 = 2$

➤ $\frac{\sqrt{2}}{2} = \frac{\cancel{\sqrt{2}}}{\sqrt{2} \times \cancel{\sqrt{2}}} = \frac{1}{\sqrt{2}}$

➤ $\frac{2}{\sqrt{2}} = \frac{\sqrt{2} \times \cancel{\sqrt{2}}}{\cancel{\sqrt{2}}} = \sqrt{2}$

Solve the expression

$$(i) \frac{9^2 - 9}{9}$$

$$(v) \frac{9^{3/2} - 6}{7}$$


$$(ii) \frac{13^2 - 12^2}{13 + 12}$$

$$(vi) (2^\circ - 3)^2 - 1$$

$$(iii) \frac{21^2 - 21}{21}$$

$$(vii) \frac{12}{\sqrt{2}}$$

$$(iv) \frac{\sqrt{2} + \sqrt{2}}{\sqrt{2}}$$

$$(viii) \frac{x^2}{81} = \frac{9}{x}$$


Find value of

(i) $10^2 - (-10^3) = \underline{\hspace{2cm}}$

(ii) $9^0 + 9 = \underline{\hspace{2cm}}$

(iii) $27 + 7^0 = \underline{\hspace{2cm}}$

(iv) $4^3 - 4^2 = \underline{\hspace{2cm}}$

(v) $3 - 1^2 = \underline{\hspace{2cm}}$

(vi) $(8)^{2/3} = \underline{\hspace{2cm}}$

(vii) $(4)^{5/2} = \underline{\hspace{2cm}}$

(viii) $(27)^{2/3} = \underline{\hspace{2cm}}$

(ix) $t^2 t^3 = \underline{\hspace{2cm}}$

(x) $\frac{1}{x^2 \sqrt{x}} = \underline{\hspace{2cm}}$

(xi) $(27)^{1/3} = \underline{\hspace{2cm}}$

(xii) $(9)^{5/2} = \underline{\hspace{2cm}}$

Question



Compare (a) 0.4

(b) 0.40

$$(c) 0.400 = \frac{400}{1000} = \frac{4}{10} \checkmark$$

Which is greater?

~~(a) 0.4 (1st)~~

(b) 0.40

(c) 0.400

~~(d) equal all~~

$$0.4 = \frac{4}{10}$$

$$0.40 = \frac{40}{100} = \frac{4}{10}$$

$$0.4 = \frac{4}{10}$$

$$0.40 = \frac{40}{100}$$

$$0.400 = \frac{400}{1000} \checkmark$$



Maha-Basic

$$\frac{1}{10} =$$

$$\frac{1}{100} =$$

$$\frac{1}{1000} =$$

$$\frac{1}{10^4} =$$

$$\frac{1}{10^{-5}} =$$



Effect on Power due to Shifting of Decimal Place

$$2.43 \times 10^2 = 24.3 \times 10^1$$

$$\frac{2.43 \times 10^2 \times 10}{10} = 24.3 \times 10^1$$

$$\rightarrow \underline{0.243 \times 10^3} \checkmark$$

$$\bullet 7.839 \times 10^{-4} = ?$$

$$\frac{7.839 \times 10^{-4} \times 10^2}{10^2} =$$

$$\bullet 783.9 \times 10^{-6} \checkmark$$

$$\bullet 0.07839 \times 10^{-2}$$

Question

H/W ✓✓



Find the value of y in given expression:

$$4.38 \times 10^2 = y \times 10^4$$

$$23.4 \times 10^{-2} = y \times 10^2$$

$$501.3 = 50.13 \times 10^y$$

$$48.6 = 4860 \times 10^y$$

$$0.38 = 0.0038 \times 10^y$$

$$0.038 = 3800 \times 10^y$$

$$0.03800 = \frac{3800}{10^5} = 3800 \times 10^{-5}$$

$$\frac{4.38 \times 10^2 \times 10^2}{10^2} = 0.0438 \times 10^4$$

$$4.38 \times 10^2 = 0.0438 \times 10^4$$

$$501.3 = \frac{501.3 \times 10}{10} = 50.13 \times 10^1$$

$y = 1$

Question

$$\begin{aligned} 1 \text{ Å} &= 10^{-10} \text{ m} \\ \text{nm} &= 10^{-9} \text{ m} \end{aligned}$$



$$4 \mu\text{m} = \underline{\hspace{2cm}} \text{ Å}$$

$$3\sqrt{8} = ?$$

$$5 \text{ mm} = \underline{\hspace{2cm}} \text{ nm}$$

$$\sqrt{3.6 \times 10^{-5}} =$$

$$12400 \text{ Å} = \underline{\hspace{2cm}} \text{ nm}$$

$$0.4 \text{ C} = \underline{\hspace{2cm}} \times 10^4 \text{ C}$$

$$12400 \times 10^{-10} \text{ m} = 1240 \times 10^{-9} \text{ m}$$

$$0.4 \text{ C} = \underline{4000} \times 10^{-4} \text{ C}$$

$$\begin{aligned} \frac{12400 \times 10^{-10} \times 10}{10} &= 1240 \times 10^{-9} \\ &= \underline{\underline{1240 \text{ nm}}} \end{aligned}$$

$$\begin{aligned} \frac{0.4 \times 10^4}{10^4} &= \frac{0.4 \times 10000}{10^4} = \underline{4000 \times 10^{-4}} \end{aligned}$$

➤ Changing the side of Power:

(i) Find x in given expression:

$$(x)^{1/3} = 4$$

$$\begin{aligned} x &= 4^{3/1} \\ &= 4^3 \\ &= 4 \times 4 \times 4 \\ &= 64 \end{aligned}$$

taking cube both side

$$(x^{1/3})^3 = 4^3$$

$$x^1 = 4^3 = 64$$

$$\begin{aligned} \Rightarrow x^{1/2} &= y \\ \text{Squaring both side} \\ (x^{1/2})^2 &= y^2 \\ x &= y^2 \end{aligned}$$

Question



Find x if $(x)^{2/3} = 9$



$$x^{2/3} = 9$$

$$x = (9)^{3/2}$$

$$x = (3^2)^{3/2} = 3^3 = \underline{\underline{27}}$$



Maha-Basic

H/w ✓

Find x in given expansion:

$$(x)^{\frac{3}{4}} = 27$$

$$(x)^{\frac{3}{2}} = 8$$



If base is same both side then power will be same.

1. If $3^{6-x} = 27$, find value of x .

$$3^{6-x} = 3^3$$

$$\begin{aligned} 6-x &= 3 \\ 6-3 &= x \\ x &= 3 \end{aligned}$$

Ans

$$\begin{aligned} 3^2 &= 9 \\ 3^3 &= 27 \end{aligned}$$

H/W

2. If $2^{y-4} = 64$, find value of y .

Question



H/W

Find value of x :

(i) $4^{x/2} = 8$

(ii) $10^{x/4} = 10^5$

(iii) $\frac{10^7}{10^{x/2}} = 10^6$

(iv) $x^{-2/5} = \frac{1}{9}$

$$4^{x/2} = 8$$

$$2^{2 \times \frac{x}{2}} = 2^3$$

$$2^x = 2^3$$

$$x = 3$$

Question

If $(x - 4)^{2/3} = 4$. Find x .

$$(x - 4)^{2/3} = 4$$

11/10



Question

Find value of x for given expression?

$$27 = (5 + x^2)^{3/2}$$

NEET PYQ

magnetic field
on axis of
ring



$$27 = (5 + x^2)^{3/2}$$

$$(5 + x^2) = (27)^{2/3}$$

$$(5 + x^2) = (3^3)^{2/3} = 3^2$$

$$5 + x^2 = 9$$

$$x^2 = 9 - 5$$

$$x^2 = 4$$

$$x = \sqrt{4} = \pm 2$$

Question

H/W



If $\left(\frac{a}{b}\right)^{x-1} = \left(\frac{b}{a}\right)^{x-3}$. Find x .

Question



Find value of 0.36×175 ?

$$0.36 \times 175 = ??$$

$$\frac{36}{100} \times 175 = \underline{\underline{63}}$$

$$\Rightarrow 0.28 \times 200 = ?$$

Question



Convert decimal to fraction:

$$0.2 = \frac{2}{10}$$

$$0.4 = \frac{4}{10}$$

$$0.5 = \frac{5}{10}$$

$$0.60 = \frac{60}{100}$$

$$0.75 = \frac{75}{100}$$

$$0.33 = \frac{33}{100}$$

$$0.66 = \frac{66}{100}$$



Question

H/W



0.25

1.33

1.50

2.51

.33

Multiply this

$$12 \times 0.67 =$$

$$16 \times 0.75 =$$

$$0.125 \times 24 =$$

$$0.66 \times 18 =$$

$$0.33 \times 21 =$$

$$25 \times 0.6 =$$

$$1.33 \times 25 =$$

$$\frac{125}{1000} \times 24 = 3$$

$$25 \times 0.6 = 25 \times \frac{6}{10} = \frac{150}{10} = 15$$

Question



$$(0.4)^2 =$$

$$\sqrt{0.49} =$$

$$\sqrt{0.64} =$$

$$(0.02)^2 = \left(\frac{2}{100}\right)^2 = \frac{4}{10000} = \underline{4 \times 10^{-4}}$$

$$\sqrt{0.49} = \sqrt{\frac{49}{100}} = \frac{7}{10} = \underline{\underline{0.7}}$$

$$\boxed{\sqrt{49} = 7}$$

Question (Level UP)



Find value of $16^{-1/4} + 4^{-2}$?

Question

H/W ✓



Find value of n ; if $\frac{2}{n} = 4 + \frac{6}{7}$.

Question



Find value of n in given expression

$$\frac{2}{n} = 4 + \frac{6}{7}$$

Solve the expression

$$(ix) 2^x = \frac{1}{8}$$

$$(x) \frac{0.4}{0.01}$$

$$(xi) (4^0 + 4^{-1}) \times 2$$

$$(xii) \sqrt{1 - 0.19}$$

✓ Addition Subtraction with Fraction

(i) $0.74 - 0.08 = ??$

(vi) 0.4×0.02

(ii) $0.9 - 0.03$

(iii) $0.94 + 0.027$

(iv) $-2.54 - 0.98$

(v) $\frac{0.8}{0.6}$

**THANK
YOU**

Trigonometry